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☞See Advertisement on last page.

POETRY.

UP, BROTHERS, UP.

BY C. D. STUART.

Up, Brothers, up! the light begins
Along the Eastern sky,
To promise that the night is past,
And better days are nigh:
A clarion voice rings o'er the hills,
The valleys catch the sound,—
And Freedom is the stirring cry
That fills the world around!

It pierces through the fading gloom,
Its strength the peasant feels—
And old Oppression from its throne
With shame and terror reels;
All men lift up their hearts and hands
More fearless and more free,
And loud rings out the common shout,
"No more we'll bend the knee!"

From smithy forge, from fisher's cot,
From plows that break the lea,
From iron looms, from smoking mines,
From ships that cleave the sea—
One voice unites and lightier
Sweeps on, and ever on,
The tyrant's day, the vassal's task,
Are gone, forever gone!

Up, Brothers, up! and share the light—
Rejoice, the day has come,
When Freedom decks the lowest shrine,
And guards the poorest home; [ties
Rejoice, and pledge with strengthening
The new born heart and mind,
To keep the boon and pass it on
To all of human kind.

Rejoice, that ye have broke at length
The thong and heavy chain,
Which neither age nor human strength
Can bind ye with again;
Rejoice, and swear ye will not bend,
Nor give the guerdon back,
Though glistening steel disputes the way,
And flame is on your track!

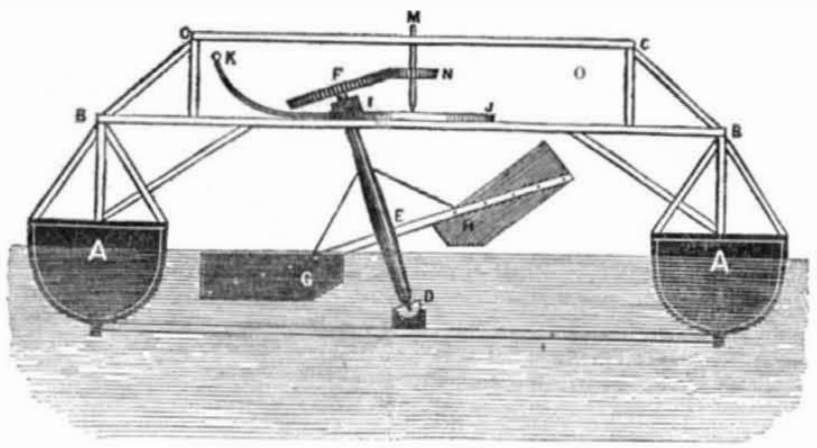
SPEAK NO ILL.

Speak no ill of erring kindred!
Breathe no slander on the name
Of thy brother, unbefriended,
Tarnish not his humble fame.
Let thy lips for e'er be sealed
'Gainst the weakness of another,
Till thine own frail heart is healed,
Utter nought against thy brother.

Lips may check, aye, blight forever,
Ardent hopes and joyous hearts;
Poison-tip'd, the tongue may sever
Idol-friends by cruel arts;—
Or, harmless, it may firmly fasten
Kindred souls with golden coil,
And may, cheerful, aid and hasten
Youth to fortune from his toil.

Hard the heart that seeks its glory
On the crush'd heart's funeral pile;
Weak the tongue that lends its story
Only to its kind revile.
Such a spirit sinks our nature—
Tramples on the law of love—
Spurns the blessings of our Maker,
Sent in kindness from above!

MYRICK'S TIDE WHEEL.



EXPLANATION.—This invention is calculated to produce an immense power from and dinary tide current, or river current without either head or fall of water. We could find no mode of representation whereby its various peculiarities could be so well illustrated, as by a transverse sectional view as here represented. A A are two boats or floats by which the frame work and machinery are supported; and these letters also designate the surface of the water. Over these boats a scaffold B B is supported by posts and braces, and over this is a horizontal beam C C. The keels of the two boats are connected by a horizontal plank or platform, on the centre of which is a concave block D, in the cavity of which is placed a semi-globe, which serves as a bottom bearing of a vertical inclined shaft E, on the head of which is mounted a geer-wheel F. From the shaft E, above the surface of the water, a series of ten or more arms project in different directions, but only two of them are shown in the engraving. To these arms are attached a series of large float boards G, H; and the shaft being adjusted in an inclined or oblique position, the float boards become immersed on one side, as G, while those opposite are raised above the surface, as H. The shaft has its upper bearing in the block I, which is attached to a circular horizontal platform I J resting on the scaffold B B, and to one side of the platform is attached a lever which terminates at K, and by means of which the platform is occasionally made to revolve on its centre. A small upright shaft M, is mounted upon the centre of the platform, and supports a small geer wheel N which is driven by the wheel F. It will be seen by this arrangement, that the position of the tide wheel may be changed, by means of the lever K, revolving or changing the circular platform, yet without disconnecting the two geer wheels. In this representation the direction of the current is supposed to be such as to propel the float board G from the eye of the spectator; but when the tide current changes, the lever K is carried round to O, by which the float board H becomes immersed, and the motion of the wheel will be the same as before; and when the mill is to be stopped, the lever being moved to a position between these points, the current will have no influence on the wheel to move it in either direction. The boats A A are to be securely moored so as to allow the water a free passage between them. The shaft M may support and carry the mill stones of a corn-mill, or the motion and power of the water wheel may be conducted by a long shaft or belt, to a mill or machinery on the shore. This mill has been recently invented by Mr. Freeman F. Myrick, of Lynn, Mass., who intends to apply for a patent forthwith. The proper size of the water-wheel is from 40 to 60 feet diameter, and the float boards 6 feet wide; and we believe its superiority over any plan heretofore introduced, will be readily admitted by those who are acquainted with the power of tide and river currents.

Afraid of the Bilers!

During the height of the opposition between the steamboat lines running from the Kennebec to Boston, last summer, and just as the rival boats were making ready to start, a wagon hove in sight, in which was an old lady, with an accompaniment of band-boxes and bundles, evidently equipped for a journey. The respective agents of the two lines sprang towards her. "Take the Marshall, marm?" fine boat. "Try the Penobscot, new boat, built last summer commanded by the favorite of every body, Capt ———," &c., &c. The boys and loafers around echoed the claims of their favorites in concert. "Hurrah for the Penobscot." "Go the John Marshall." The old lady who had probably never seen a steamboat before, and whose chief notion of the varmints was connected with their boiler bursting propensities, was almost beside herself with terror, at the hubbub.

"O, Lordy! I wish I'd never stirred a step—if I'd known there was to be such an awful time as this I'm sure I would'nt. The pesky bilers—I know they'll burst—everybody's looking after me, and nobody's attending to 'em.—There, go right away, all of you. I'm going straight back. I could'nt rest a wink for fear of them pesky bilers." "You need not give yourself any anxiety on account of the boilers in the Marshall"—(said the agent of the M.) "they are new and sound, and could'nt be made to burst." "Are you sure of it," said the old lady, evincing symptoms of a favorable disposition towards the Marshall—"you ain't a tryin' to practice on the credulity of a poor lone woman I hope."

"No fear of me."

The old lady was about descending from the wagon to embark in the Marshall, when agent No. 2 stepped up.

"Madam," said he, in a serious tone, "no doubt the Marshall's boilers are sound enough, but the best boilers are dangerous things. We knew that a great many people had been killed by them—especially of late—and took the boilers out of our boat three weeks ago."

"You did," said she, "that's the boat for me, then," and down she got and went on board as quick as possible.

Great Invention.

A machine has been invented for the accommodation of the turnkeys in one of the Pennsylvania Penitentiaries, whereby the operator may seize a refractory convict, and drag him forth on any special occasion. It is a sort of gigantic corkscrew attached to a long pole, which hooks into the prisoner's clothing, and holds him fast. This is literally "putting on the screws."

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending June 5th, 1847.

To Samuel Bailey, of Kerr's Creek, Virginia, for improvement in Threshing Machines. Patented June 5, 1847

To Benjamin F. Shelabarger of Mifflintown, Pa., for improvement in making candles.—Patented June 5, 1847.

To James Napier, of Shacklewell, England, for improvement in the process of reducing Copper Ores. Patented June 5, 1847.

To Henry S. North, of Middletown, Conn., for improvement in Fire Arms. Patented June 5, 1847.

To James Black, of Philadelphia, Pa., for improvement in Rotary Steam Engines. Patented June 5, 1847.

To Asa Barber, of Stephentown, New York, for improvement in Mills for Grinding. Patented June 5, 1847.

To Uriah Atherton Boyden, of Boston, Mass. for improvement in Water Wheels. Patented June 5, 1847. Ante-dated Dec. 5, 1846.

To Willis W. Cawling, of Richmond, Virginia, for improvement in raising ice from ponds, &c. Patented June 5, 1847.

To Edwin Wesson, of Northborough, Mass, for improvement in Fire Arms. Patented June 5, 1847.

To Joseph Rowland, of Hancock, Md., for improvement in Fenders for Canal Boats. Patented June 5, 1847.

To Henry B. Sommers of Greenfield, Indiana, for improvement in Turf Ploughs. Patented June 5, 1847. Ante-dated Dec. 5, 1846.

DESIGNS

To Henry Biggins, of New York, for design for Fire Place Grates, (having assigned his right to James L. Jackson.) Patented June 5, 1847.

RE-ISSUE.

To Anson Atwood, of Troy, New York, for improved Cooking Stove for Summer. Patentented June 30, 1838. Re-issued June 5, 1847.

Hurly Burly.

There are some people who are always on the clip jumping at nothing. Those are the kinds of people that always commence building a house at the top, leaving it to stand there. In case of fire, the first thing they do is to throw the china out of the window and carry the feather bed slowly down stairs. Give us the cool energetic man, who never has his work to do. He always can help his neighbors and get through the world in good season.

Legal Wit.

Henry Erskine, the famous Scotch Barrister a great wag, was once pleading before a funny Scotch Judge with whom he was on the most intimate terms; and happening to have a client, a female, defendant in an action, of the name of Tickle, he commenced his speech in the following strain:

"Tickle, my client, the defendant, my lord."

The auditors were almost driven into hysterics of laughter by the Judge replying—

"Tickle her yourself, Henry—you're as well able to do it as I am."

Yankee Calculation.

"I reckon I lov yer," said a Yankee accountant to his sweetheart. "How on airth, Johnathan, do you arrive at the calculation," inquired the fair one? "By simple addition," replied the ready reckoner, "for when I have you hanging on my arm, I guess my sum of human happiness is complete.

Pope's Skull.

Stolen by a grave-digger, and sold for fifty pounds sterling, *adorns* the cabinet of some craniological vampyre in England.

A great assemblage of German singers is to be held at Bremen, which is to be attended by nine hundred vocalists.

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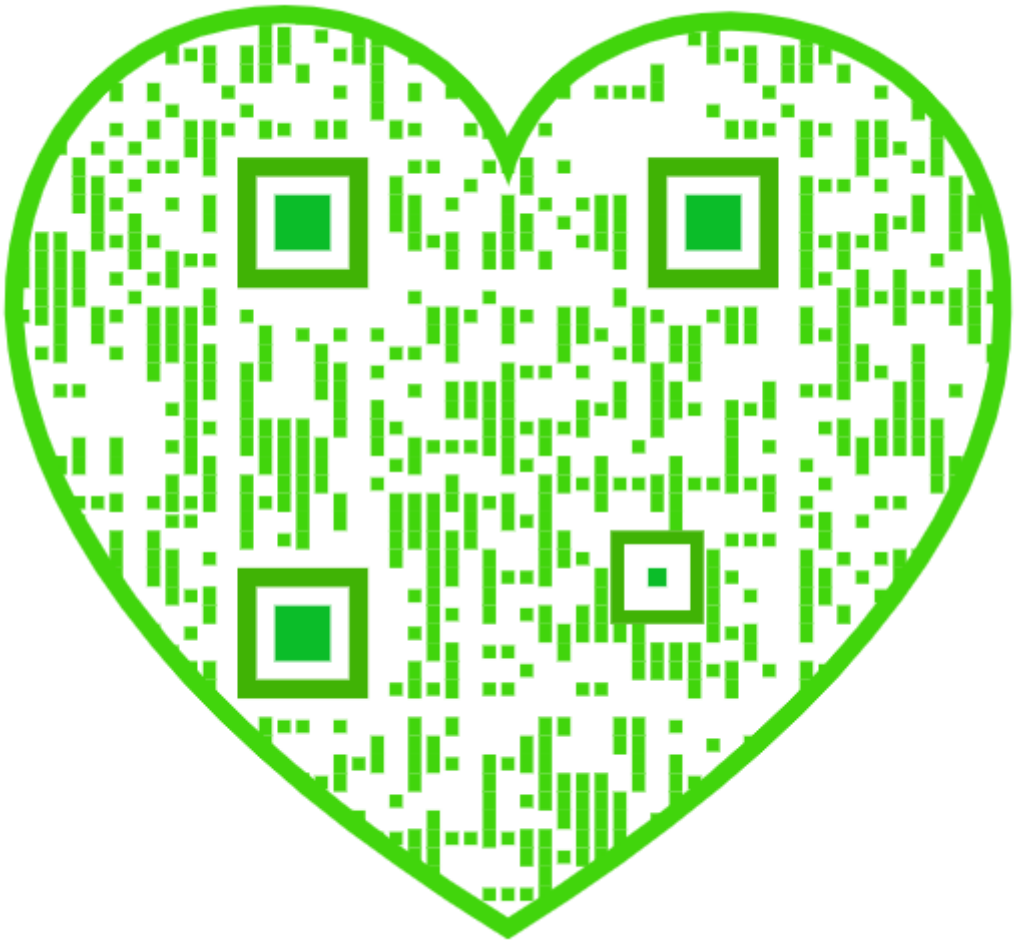

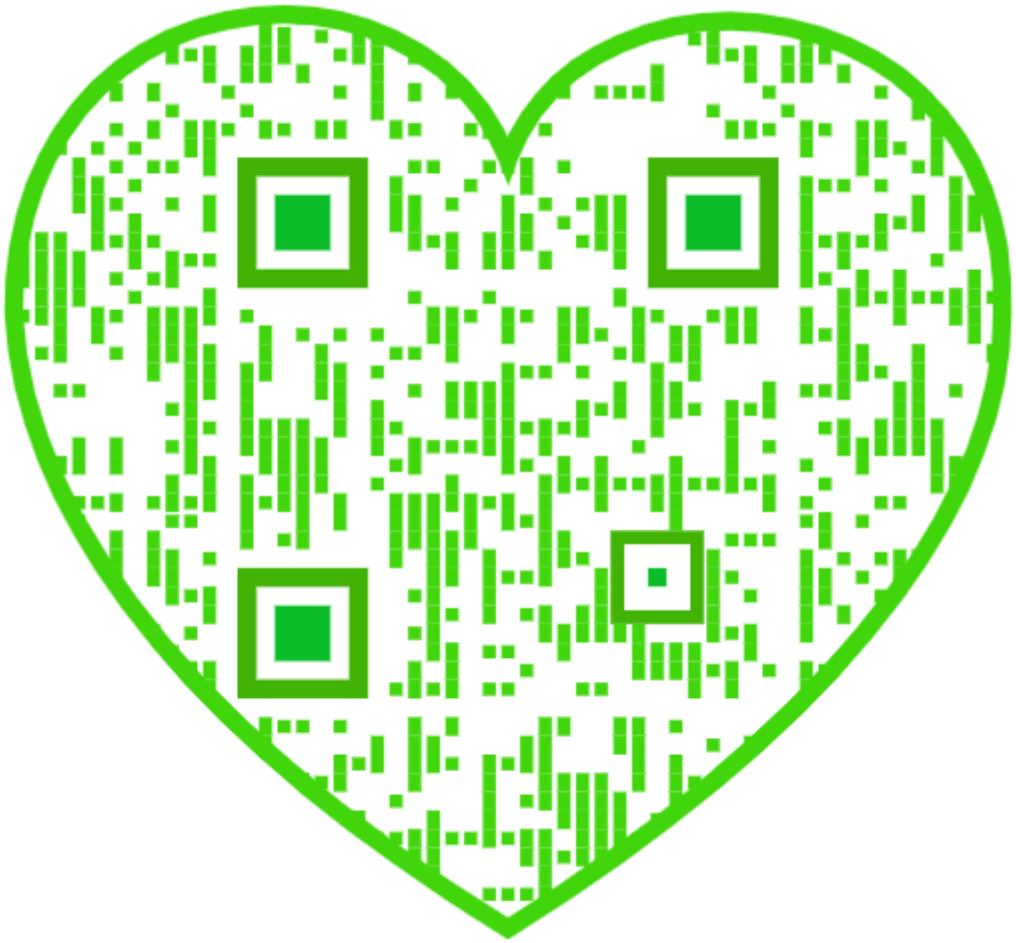

The Great Britain Steamer.

We learn from our correspondent, that on the last spring-tide, the *Great Britain*, as soon as the water was about three-fourths up, rose with it until high water, when she appeared from the shore to be nearly level. This must be hailed as a good sign, as it shows that the efforts which have been making to tighten her compartments are likely to be attended with success. At low water the signs of her having moved were self evident, as several hundred tons of large stones, which had been for more than a month accumulating through the labor of the poor people in her locality along her sides, were forced off from her for more than a foot on each side. The next spring tide will not be so high as the last, but the engineers are at work in making her bunkers as tight as they have made her forehold, through which she buoyed herself up, several feet at the fore end

Leather Trade of Ohio.

Within a few years our leather trade in Great Britain has greatly increased, owing to removal of all the duties on foreign leather in that country. Ohio seems to take the lead in the quality of her leather for export. It is said that three fourths of all the Ohio leather arriving in this city, is shipped to Great Britain. The bulk of the leather is more light than that manufactured in this State, and is preferred by the English Merchants for finishing into upper leather. The most of it is tanned with oak bark, and will now bring about 20 cents per lb. Last year the same article was only worth 15.

The Money Pressure in England.

The vast exportation of gold for food has been severely felt in the English money market. The paper of one of the most extensive manufacturers in the Kingdom was "done" at *seventeen* per cent., in Liverpool; and that a ruinous rate was charged also upon the paper of the Rothschilds. As an illustration of the state of affairs, John Bright and Brothers, of Rochdale, near Manchester, have stopped their extensive mills, and are now paying £100, or nearly $500 a week to their hands, in order to keep them from starving. If this pressure shall continue for a month longer, it is thought the failure of many extensive houses will be inevitable.

Fleeting Shower Bath.

This simple apparatus of the New England Bath Company, is to all appearance, the most beautiful and cheap apparatus of the kind ever introduced. The bathing pan slides up and down in a groove on the back part of the box and can be elevated and let down by a rope and pulley with the utmost ease, as the rope is *kinched* over a roller and holds the pan at any elevation for letting the waterfall. They are for sale at 421 Broadway, R. C. Kemp, Agent.

Calvary Church.

This is an elegant new Church situated at the corner of Fourth avenue and Twenty-first street. The building is of Gothic Architecture, designed by Mr. Renwick, the architect of Grace Church, and erected under the supervision of Messrs. Butler & Brinkerhoff.—The interior is richly finished, with 224 pews which will seat 1100 persons. There is only one gallery, that for the organ, a fine instrument, built by Messrs. Davis & Ferris, at the cost of $12,000. The Rector of the Church is Rev. Samuel L. Southard.

State Bank at Elizabeth, N. J.

The Gazette and Times came out the other day with a fine puff for the above concern.—We are at a loss to conceive how any respectable journal in this neighborhood, with the fresh remembrance of the Plainfield,—so 'recently deceased,'—can have the impudence to uphold another Jersey Bank, of a much worse stamp. Mr. Gazette, how much was you paid for that?

Quick Work.

A new steam pile driver at the Navy Yard, Brooklyn, N. Y., recently drove down a pile forty feet long in *one minute!*

Fascination, or Philosophy of Charming.

A work bearing the above title has just been issued by those enterprising publishers, Messrs. Fowler & Wells, which unfolds many mysteries that the common mind has never investigated. We have taken much pleasure in perusing the work ourselves, and for the accommodation of any that may wish to possess it, we would inform our readers that we have made arrangements whereby we can furnish them at wholesale or retail, at the publishers' prices. The work is illustrated with 18 fine engravings, besides the frontispiece, which is a superb engraving, representing "Chiron fascinating Esculapius," taken from the original engraving. Upon the receipt of 50 cents a copy will be forwarded by mail and postage paid, or they may be had at this office for 40 cents each. See advertising columns.

The New York Organ.

This valuable Temperance Journal commences its seventh volume July 3, and is the best and most popular temperance journal published in America. Its enterprising publishers, Messrs. Oliver & Brother, have engaged some of the best writers this country can produce to assist them in the editorial department, and without doubt on the next volume it will more than sustain its present celebrity. See prospectus in advertising columns.

The Illustrated Sun.

The June number of this superb monthly is just published, and for beauty and originality of engravings surpasses many of its former numbers. It is published at the Sun Office, at $1 per year, or single numbers may be had at their counter at 12½ cents each.

New Era in Navigation.

On the 20th ult., a three masted schooner anchored outside Chicago harbor, loaded with 18,000 bushels of wheat, with which she had cleared for Liverpool. She goes by the way of the Welland Canal and St. Lawrence. This is the first clearance of the kind ever made from the inland waters of the great lakes for a European port, and constitutes a new era in the history of navigation.

Manufacture of Paper in the United States.

From statistical documents presented before Congress, it appears that the capital employed in the manufacture of paper in the United States, is $18,000,000. The number of mills 700; the annual product $17,000,000; and the number of operatives employed, 100,000.

The Largest Churches in the World.

St. Peters at Rome, is capable of holding 54,000 persons. The Milan Cathedral, 37,000. St. Paul's, at London, 32,000. Notre Dame, at Paris, 32,000. Cathedrals at Florence and Antwerp, 24,000 each.

Australian Copper Mines.

Letters from Australia continue to announce the progress of mineral discovery in that country—particularly in the South. Fine specimens of ore, azure, blue, carbonate of copper, have been found in town lands on Currency Creek; and a pure load of malachite had been struck in the Burra-Burra mines.

Berkshire Iron.

It would seem that like her sons of "iron minds." Berkshire, Mass., has invaluable beds of iron ore in the bosom of her rocky mountains. A new furnace and forge is in course of erection, about five miles from Pittsfield.

British Coin.

Dr. Bowring has brought a bill into parliament for the purpose of altering the British Coin to the decimal parts on which the American currency is based. Two shilling pieces are to be struck as 10ths of a pound.

Stone Oil.

Some Frenchmen have contrived to squeeze oil out of stones. There are some articles of this description hereabouts, commonly called hearts, that would set all their compressive and solvent powers at defiance.

To Relieve Colic in Horses.

Rub spirits of turpentine on the breast of the horse, and if he be drenched with it, also, he will be relieved. Horses should never be put to severe work on an empty stomach; but more horses are hurt by hard driving after a full feed, than by a full feed after hard driving.

Recent Fires.

At the Ohio Penitentiary on the 7th inst., a fire consumed property to the estimated value of $20,000, of which $8,000 was covered by insurance.

The Cattaraugus Co. Poor House was destroyed by fire on the 15th ult., one of the inmates, an insane pauper, named Rosana Herrick, aged about 21 years, who was supposed to be upon one of the beds in the chamber, perished in the flames.

The Court House at Vienna, Dooly County, Ga., together with the records of the county, and $10,000 collected from defendants, was destroyed by fire on the night of the 7th inst.

At Oswego, a building occupied by Edward Wentworth, for cutting barrel staves, was destroyed by fire on the 11th ult. The dwelling of Mr. Merrill, about 4 miles up the river, was destroyed by fire on the 12th ult.

Singular Discovery.

In the south-western part of Franklin county, Mississippi, a curious subterranean chamber has been discovered by some persons while exploring the banks of a small stream. It is about 180 feet long and 80 feet wide, and of beautiful mason work, equal to any of modern times. The land above it is cultivated, but thirty years ago, trees of three feet in diameter flourished luxuriantly. It is evidently of remote antiquity—the hands that formed it and the race are unknown, and have long since passed from the earth. The Indians in the neighborhood knew nothing of its existence and had no tradition of the same. There is a also a canal connected with it and a long sub terranean passage, which have not yet been explored.

Tall Weaving.

A Weaver in Ogden Mill, No. 2, noticing the account of a large week's work in Strong Mill and determined not to be outdone, applied herself to the work.

In 5 3-4 days she wove without assistance, 43 cuts of cloth 40 inches wide, 68 picks to the inch. The cloth was perfect and averaging 33 yards—33 cuts at 27 cents is $11,61.—*Cohoes Advertiser.*

This would be 3,371,441 times the shuttles passed across the webs, or having travelled the great distance of a little more than 2,128 miles. It appears to us to have been above the capacity of common looms the velocity being greater than any with which we are acquainted.

New Use of Ether.

From a number of sources, we have heard the most wonderful accounts of the effects of ether, and especially one account that we have seen lately of a blacksmith in Concord, who having had the necessity to shoe a fractious horse which had long baffled all the blacksmiths around the country by kicking and squealing. Mr. Bigelow, a blacksmith of Concord, struck upon the novel mode of administering a dose of ether. The effect was a perfect calmness—the horse was shod with ease, and was as bright as ever afterwards.

Borrowed Plumes.

The Delta states that a number of the returned volunteers, paraded the streets of New Orleans on the 22d of May, arrayed in captured Mexican uniform. It seems that 6000 of these uniforms were taken from the Mexicans at Cerro Gordo, and divided by Gen. Scott among our ragged and ill-clad volunteers. The uniforms are said to be nearly new, and to be comfortable and tasteful.

Gold Washing.

There are some of the rivers of Russia that possess as much gold as those of Brazil. Russia has not been able within the past 3 years to expend her income of gold, hence the investments in France and England by the Emperor. He has recently supplied the Bank of France with about $10,000,000 in gold, and has furnished the Bank of England with about $15,000,000 in the same metal. Gold is said to be found in very great abundance in the Ural mountains, within a few years.

Emigrants.

Since January first 60,667 emigrants have arrived in our city. There have been 680 deaths on ship board, and 1,856 were admitted into the Hospital, of whom 87 have died of fever.

LATEST FROM MEXICO.

Vera Cruz was beginning to recover from the effects of the seige. Houses were rebuilding and business commencing with all the bustle and activity of a seaport.

The vomito had made its appearance, but the cases were few. Santa Anna had gone to the Capital to organize the forces there. Gen. Valencia had gone with five thousand of the National Guards to unite with Santa Anna's collected troops.

The Pacific Squadron was capturing towns and cities on the coast with but little trouble. Gen. Taylor had started for San Louis Potosi, and a great battle was expected there—not the final one we think.

A most deplorable duel occurred at China on May 21st, between two Virginian Lieutenants, one named Mahan. They fought with muskets loaded with buckshot, and both parties were killed.

Beautiful Incident.

As the column of Mexican prisoners was marching from Sierra Gordo, *a little boy and a lamb* were seen moving along with the rest. Amid the fire and smoke, roar of musketry and artillery, which had so lately enveloped the hill, these weak defenceless creatures stood unharmed. As they passed the American ranks they were greeted by a cheer. Countenances dark with the fierce passions of conflict, and clouded with the remembrance of fallen friends relaxed into smiles of kindness and pity—the boy and his lamb seemed a beautiful bow thrown over the brow of the recent terrible storms.

Remedy for Cancer.

Col. Ussery, of the parish of De Soto, informs the Editor of the Caddo Gazette that he fully tested a remedy for this troublesome disease, recommended to him by a Spanish woman, a native of the country. The remedy is this:—Take an egg and break it, then pour out the white, retaining the yolk in the shell, put in salt and mix with the yolk as long as it will receive it, stir them together until the salve is formed, put a portion of this on a piece of sticking plaster and apply it to the cancer about twice a day. He has made the experiment twice in his own family with complete success.

Tobacco.

In the year 1843, eight million one thousand four hundred and forty nine pounds, one shilling and four pence was spent by the people of England in tobacco; a tolerable round sum to "end in smoke." If the weed had been worked into pigtail, rather more than half an inch thick, it would have formed a line 99,470 miles long; long enough to go nearly four times round the world!

Poisoned by Hemlock.

On Sunday last, while a party of friends were passing through a wood in Glenville, near Schenectady, a root, mistaken for "spignet," was pulled up near a creek, and eaten, which caused the death of a young lady named Elizabeth A. Boyer. The action was so sudden and violent as to produce death before medical aid could be procured.

Russian Weather.

A letter from St. Petersburgh of the 2d of May states, that there had been heavy falls of snow, and that in the day time the thermometer marked five degrees below freezing.

The Picayune gives a list of 37 American steamboats, now running on the Rio Grande, of which 22 belong to Government, and 15 to individuals—besides which, 11 have been lost.

"Fifteen Hundred Houses."

The Boston Atlas says that fifteen hundred houses will be built in the town of Lawrence the present season.

Several German engineers have arrived in Egypt, in order to make the necessary surveys for cutting a ship canal through the Isthmus of Suez.

The Utica and Schenectady Railroad raised its fare on the 1st inst. from $2 to $3 for a distance of 80 miles, or from 2½ to 3 3-4 cents per mile.

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BEAUTY AND MUSIC.

There is beauty o'er all this delectable world,
Which wakes at the first golden tint of the light;
There is beauty when the morn hath her banners unfurled,
Or stars twinkle out from the depth of the night.
There is beauty on ocean's vast verdureless plains,
Though lashed into fury or lulled into calm,
There is beauty on earth and her countless domains,
Her cornfields of plenty and meadows of balm;
Oh, God of Creation, these sights are of Thee,
Thou surely hast made them for none but the free.

[earth,
There is music when summer is with us on
Sent forth from the valleys the mountains and sky,
[birth,
There is music where rivers and fountains have
Or leaves whisper soft as the wind passeth by.
There is music in voices that gladden our homes,
The song of the mother, the laugh of the child;
There is music wherever the wanderer roams,
In city or solitude, garden or wild.
Oh, God of Creation, these sounds are of Thee,
Thou surely hast made them for none but the free.

Geological Wonders in Alabama.

Dr. M. W. Dickinson, of the Academy of Sciences, who was sent from Philadelphia for the purpose of investigating the geology of the Valley of the Mississippi, recently made a tour of inspection in that portion of Alabama in which abounds the rotten limestone formation, which is particularly the case in the vicinities of Clark, Washington and Claiborne counties, and has communicated to the New Orleans Delta some of the interesting results of his researches. He states that this formation is a huge coral reef, where gigantic branches shoot up several feet into a beautiful arborescent form, in its original bed of the primeval ocean. At its base are the fossil remains of the huge inglodon, shark, fishes, &c., many of the former from forty to one hundred feet long, winding in serpentine form among the coral. Below this were found the remains of an extensive sea, the bottom of which was lined with a bed of shells, varying from twenty to thirty feet, in a fine state of preservation.—These beds yielded a great variety of shells, many of which may still be found in our present seas, and hence must have been of comparatively recent formation. Below this was found a huge oyster bed, imbedded in a blue marl or clay, in their original position. Some of these oysters measured fifteen inches in length, and weighed from ten to fifteen lbs.—Succeeding this stratum were found the bottoms of several ancient seas, lakes and rivers, all yielding numerous fine fossils. Many of these fossils Dr. Dickinson has forwarded to the Academy of Natural Sciences in Philadelphia.

The Man Monkey.

Hervio Nano, of whom so much has been said in regard to his deformity and wonderful powers, was a native of Connecticut, and his real name was Harvey Leach. His arms were fine and powerful, his countenance noble and his chest Herculean. The deformity was in his short legs. He had no knees, but his arms wonderfully supplied their place. We have seen him perform some wondeful feats, such as climbing up a pole like a monkey, standing on his hands with his feet perpendicular on horseback at full gallop, and leaping on horseback with the agility of a cat. He was long attached to Brown's Circus in its palmy days. He lived a long time in London and died there, but he was always known to be an American, and Little Leach, as he was originally called, was for a long time the wonder and delight of those who admired feats of mountebankery.

The Lungs.

To prove the soundness of the lungs, let the patient draw in a full breath, and then begin to count as far as he can, slowly and audibly, without again inflating the lungs. The number of seconds he can continue is then to be carefully noted. In confirmed consumption, the time does not exceed eight, and is often less than six seconds. In pleurisy and pneumona it ranges from nine to four seconds. But when the lungs are sound the time will range as high as from twenty to thirty seconds.

The Agency of Science.

How wonderful are the revolutions which a slight improvement in science may produce on the earth! The mariner's compass has annihilated the commerce of Arabia. The overland traffic to India has been swept away by it. It has impoverished Mecca and Medina, Ormuz, Bostra, Tyre, Alexandria, and Rome. It has placed the frozen isle of Britain on the vantage ground above Alexandria, and the Eternal City, as to Indian commerce. It has brought the *terra incognita* which we inhabit, nearer than the city of David. It has thrown back Arabia and her vast traffic, and with it her very literature, upon her own desert sands, and reconverted her teeming population into robbers of the desert. And what may not the inventions of science do again for Arabia and Jerusalem? It is beyond the range of even probability, that the genius of Fulton may cover the Nile herself with a thousand floating palaces, and drown the roar of her far-famed cataracts in the boomings of a hundred steamers? Is it too visionary to suppose that a line of levels may be carried from Acre, by Mount Tabor, over the plain of Jezreel to the border of the Sea of Galilee, thence down the Jordan, and by some ravine cutting across through the valley of Jehosaphat to Jerusalem—thence to the Dead Sea and down the valley of El-Ghor to Akaba, the seaport of Solomon's Navy? Is it beyond the range of possibility, that the same genius may disembowel the mountains of his native land, and convert the vast masses of her iron ore into steamships, and combine the latent fire of her anthracite with the waters of the Atlantic, the Mediterranean, the Nile, the Red Sea, the Indian Ocean, and waft the freedom, the literature, the enterprise and the religion of his native country to all the darkened nations of the Eastern hemisphere?

Thus Christianity, by fostering science and patronizing literature, promotes commerce and civilization, and these again carry forward the Gospel in its triumph round the globe.

Polish Honey.

Poland is perhaps the greatest honey-producing country in Europe. In the provinces of Podolia, Ukraine and Volhynia in particular, the cultivation of the honey-bee has long formed an object of national importance; and these bee-gardens are not only very numerous and extensive, but they are also very common in other parts of the kingdom. There are cottages in Poland, with very small portions of land attached to them, on which are to be seen as many as fifty hives; while there are farmers and land proprietors who are in the possession of from 100 to 10,000 lives! There are some farmers who collect annually more than 200 barrels of fine honey, each barrel weighing from 400 to 500 lbs., exclusive of the wax. A tenant is often enabled to pay his rent and taxes, to defray other domestic expenses, and often to accumulate handsome dowries for his daughters.

Prussian Blue.

In manufactures, this is the most brilliant of all the blues. Neither woad, indigo, copper nor cobalt can approach to it. For a long time its application to woollen dyeing was deemed impossible, as a basis of iron was considered to be necessary to the formation of the color; but by late discoveries new combinations of a different nature have resulted in the production of a color of intense brilliancy and very durable without a single grain of iron used as a basis. The process is, for one pound of woollen cloth, two ounces of the prussiate of potass, two of tartaric acid, and equal quantities of nitric acid and sulphuric until the liquor has a slight acid taste The goods are (any quantity to the above ratio of proportions) put in the boiler after the stuffs are dissolved and gradually brought to a boil and kept boiling for twenty minutes; they are then taken out and washed, and a fresh boiler with a small proportion of logwood and the muriate of tin brought to the boil, through which the goods are run for about 15 minutes. Light blues need not the last process. Cochineal instead of logwood, gives the color an exceedingly rich tinge.

The average number of inhabitants on a square mile in China is 230; in England 236; in Ireland 275.

THE WEATHER, &c.

WEDNESDAY, JUNE 2d:

	Hours, A. M.									Hours, P. M.									
	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Therm.	59	59	60	64	67	69½	69½	70	71	72	73	74	74	72	70	68½	66	64	62
Wires,	61	61	62	65½	70	72½	72	72	73	74	74	75	76	74	72	70½	68	66	63½

THURSDAY, 3d.

Therm.	56	57	58	62	67	69	70	71½	74	73	73	70½	68½	67	66	—	63½	62½	62
Wires,	57	58	60	64	69	71	72	73	75	73½	74	71½	70	68	67	—	65	64	63

Equilibrium begun at 10 *P. M.*

FRIDAY, 4th

Therm.	62	62	63	63	65	66	66	71	73	76	78	79	79	78	75	73½	71	70	68½
Wires,	63	64	64	65	67	68	68	72	74	77	79	80	80	79	76	75½	73	72	70½

Equilibrium ended.

SATURDAY, 5th.

Therm.	58	58	58	60½	63	65	67	67½	69	70½	72	73	73	73	71	69	66	65	62½
Wires,	58	60	58	61	64	66	68	68½	70	71½	73	74	74½	74	72	70	68	67	64

SUNDAY, 6th.

Therm.	—	55	57	59	63	66½	67	67½	69	—	72	73½	73	71	70	—	66	64	—
Wires,	—	55	58	61	65	67½	68	69½	71½	—	73½	74½	74	73	72	—	67	65½	—

MONDAY, 7th.

Therm	57	58	59	65	70	72½	73	74	76	77	79	77½	77	75	73	70	67	66	—
Wires,	57	58	60	66	71	74	75	76	77	78	80	78	77½	76	74	72	69	67	—

TUESDAY, 8th.

Therm.	59	59	61½	—	67½	71½	73	75	74	75	74½	72	70	69	67	65½	64	63½	63
Wires,	61	61	62	—	68	73	74½	76	74	74½	74	71½	71	70	68	66	65	65	65

Equilibrium begun.

REMARKS.

June 2. Lightning, thunder and rain before day break this morning attended by a depression of temperature of 5½ degrees in six hours, viz: from 10 last evening to 4 this morning, 3 degrees. A little after 8 this morning the bright atmosphere suddenly changed its transparency to opacity by frigerific action without wind and therefore electric—at 10 A. M. a Solar Halo was visible—at 7 P. M. the clouds for several miles in extent presented an extraordinary appearance, and resembled loose carded rolls of cotton or wool spread over an uneven surface—some of them were twisted and looked like water whirls—at 10 P. M. rain commenced falling and an equilibrium had begun to run upon the wires and with the thermometer. June 4. Lightning, thunder and rain after 1 A. M—lightning so abundant and so frequent as to average for a considerable time four electric discharges per minute. I was awakened by a bright coruscation of the lightning, and undertook to measure the time between the electric discharges by counting from one upward—17 was the highest and 7 the lowest number counted between the electric discharges, and such was the influence of the lightning upon me that I found it impossible to keep awake, and actually fell asleep while counting between the flashes of electric fire. June 6. Solar Halo visible at 9 to 10 o'clock. 8th. Clouds in distant S. W. at 4 A. M.

E MERIAM.

Brooklyn Heights, June 8, 1847.

BROOKLYN HEIGHTS, June 8, 1847.

Mr. Editor:—I see a memorandum attached to the Meteorological proof sheet, saying that a gentleman in Texas enquires in relation to the material of which my wires are made, and as to their construction.

The apparatus which, for brevity, I call "the wires," consists of four pieces of iron wire, in all about 180 feet—two are 1 inch in circumference and two one-eighth that size—two copper wires three-sixteenths of an inch in circumference and two tin tubes, one of 12 feet in length and the other of 12 inches. The lower end of the tube three-eighths of an inch diameter in the clear, the top three-sixteenths. To these is attached a native loadstone of about one pound weight, from the Magnetic Cove in Arkanzas. The loadstone is suspended in a linen bag surrounded by a wire frame, and is confined to the centre of an iron wire pointed at both ends 1 inch in circumference and 18 inches long. To this wire is suspended a spirit tube with a graduated scale corresponding with that of Fahrenheit's thermometer.—These are all the materials. The north-east wire, which is one inch in circumference, is about 80 feet long and rises to the height of 45 or 50 feet above the ground, has a tin tube affixed to its ærial point 12 inches long, through which a copper wire is passed connecting the three metals together—this points to the north east; after reaching within ten feet of the earth it is made fast to a wooden fence and runs alongside of that at a gradual descent about 20 feet and enters a pool of salt water, through which it passes into the ground; another iron wire of the same size terminates in the atmosphere above the top of a cherry tree, with which it is connected by by an iron staple driven into the tree so close as to come into contact with the wire and bring both in connection with the pores of the living tree which is connected with the earth by its roots and the air by its leaves—this wire has a tin tube upon its upper point 12 feet long, through which a copper wire runs, thus connecting the three metals—this points to the south-west and terminates at its lower extremity in the earth, passing through the salt water pool so as to come in close contact with the north-eastern wire at its terrestrial termination. About 15 feet from the ground two wires run about 25 feet nearly horizontal and connect with each of the vertical wires at points twenty feet apart—these two wires unite and support the loadstone. When the vertical wires were first erected they were intended for electrical conductors and nothing else, but were subsequently altered so as to make them meteoric and afterwards magnetic The double pointed wires to which the loadstone is made fast to the centre of, is red at one end, and black, or the usual color of the wire at the other; the red coloring is a fine dust, (the red oxide of iron)—on examining this to ascertain why one end of the wire should be so different from the other—where both are alike exposed, although under cover. I came to the conclusion from an examtion of the loadstone that the red end was in contact with the *attractive pole*, while the other was in contact with the *repulsive*—for such is the position of the load stone, and such its poles. This fact, I think of great importance, and will explain the stratification of mineral veins. My writing table is so situated that I can see the wires during thunder and lightning storms, and can easily see any disturbances of the water through which these pass. There is a frequent discharge of carburetted hydrogen gas from the orifices in the stone which covers the lower pool, the surface water of the pool being 3 inches above the stone. I have imputed this discharge of gas to the vibration of the wires from the motion of the air stirring up the bottom of the pool. (*To be continued.*)

Pottery Compounds.

Alumina when pure, is a fine white powder, very brilliant. It is the principal constituent of every kind of clay. Its basis is a metal resembling tin. At a red heat it burns with great splendor, and is converted into alumina. It is useful in the manufacture of every species of pottery. Alumina shrinks into less bulk according to the intensity of the heat which is applied to it. It used to be employed as a pyrometer to measure very high degrees of temperature in furnaces. A gauge was used for measuring the amount of contraction. A knowledge of the contracting nature of alumina, may be very useful to the potter, who might on some occasions use ground alum in his mixture. There is perhaps no art regarding which such particularity and knowledge is required, than in the mixture of pottery compounds, a very small variation in mixture will spoil a whole furnace of pottery ware.

The Magnet.

If a current of electricity be made to pass along a wire under which, in a line with it, is placed a compass, it will be found that the needle no longer points north or south, but will point nearly across the current, east and west. This fact has led some to think that there are constant currents of electricity passing east and west across the earth, and may cause the needle to point always north and south.

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NEW INVENTIONS.

Brewster's Reversing Plough.

We have been shown a model of Mr. Iram Brewster's plough, which promises to be of great advantage to our farmers, especially on broad clear fields. The mould board is shaped like a divided cone, on the inside of which is fastened with a hook and staple, the beam, which moves in sockets fixed in the centre of the board. When a furrow is ploughed out, all that has to be done, is simply to turn over the plough, and the beam round, and plough backwards, turning the sod in the same direction as the previous furrow, though moving in the contrary direction. By this reverse movement a great amount of time and travel is saved. After a fair trial of this plough has been made, if found truly beneficial, Mr. Brewster will apply for a patent.

Goddard's Rotary Engine.

Mr. Emerson Goddard of Petersham, has sent us a description of a new Rotary Engine, unique and somewhat different from others. On one side is a stationary disc; on the inside of which are two rims four inches deep and three inches apart, leaving a groove between them in which a piston runs, fixed to the outer or running disc (shield,) on which is another rim or box, on which the shaft of the moving disc has its bearing. The steam enters through the centre of the stationary disc, which easily sets the moveable shield in motion until the piston comes to a certain point when it opens a valve and is again returned to the steam box, keeping up a perpetual revolution it may be said by its first breath It can be made to move either in a vertical or horizontal position.

Judson's Stave Dressing Machine.

One of these machines have been put up in this city, on the corner of Stanton and Mangin Streets, and is in successful operation. Its superior qualities consist in the ease and speed with which it dresses coarse cask staves. It can dress 11 barrel staves per minute, and eight hogshead staves in the same time. Its benefits consist in the accommodating gearing of two grooved wheels upon a vertical shaft which bites on the stave without springing, and passes the bendings of the staves (which are all split) leaving them all of an equal strength. Sawed staves are not considered as strong as the split—the grain being frequently crossed in the sawing, which when made into hogsheads and packed in the holds of vessels, tier upon tier, are liable to crack and strain on the edges of the seams and chimes, and thereby subject to leakage. This machine obviates the difficulty of all other stave machines yet made, none having been able to operate upon rough staves, they having all to be sawed before they were shaved. We shall be able soon to present a diagram, and a description of it in full.

Corn Dryer.

But little attention has been heretofore paid to the drying of corn, from the fact, that as an article of export, it has been almost unknown. But now from the dearth in Europe, corn has arisen to an importance as an article of European diet, which cannot but cause our farmers and merchants to adopt the most economical means for drying it. Kiln dried corn only being able to preserve its original flavor. Necessity is the mother of invention. Some time ago we noticed the invention of a Corn Dryer at Kalamazoo, Michigan, and now we perceive that Mr. Bodey of Poughkeepsie, has invented another. The grain is fed into a cylinder from a hopper by a spiral feeder, and then passes through shallow conduits over the flues or tubes of the furnace and falls into a grainery perfectly dried.

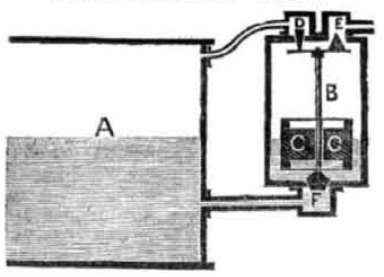
Patent Safety Traces.

Mr. Eckert Myers of West Earl Township, O., has invented a curious kind of trace, which are fastened to the shafts of the carriage, and the horse harnessed in the usual way, and then hitched by rings fastened to the carrier of the shaft in such a manner that should the horse become ungovernable, all the driver has to do is to draw back the spring fixed to the traces and the vehicle is set free.

Printing on Canvass.

A new process of printing upon canvass has been discovered in Paris, by which pictures equal to fine paintings are produced.

Treadwell's Feeder—Again.



This little invention, simple as it is, has met the approbation of several scientific men; and as we believe the principal of connecting the conical and vertical steam valve with a buoyant float, to be governed thereby, for the purpose of producing a vacuum by the condensation of the steam, and thus replenishing the feeder, is novel and original with Mr. Treadwell, whatever modifications may be made subsequently thereon. A friend of ours in this city has suggested what he believes to be an improvement thereon, by so connecting all three of the valves—the steam valve, the induction valve, and the supply or feeding valve, —that they shall all be governed arbitrarily by the float, instead of depending on their own willing action in their respective offices, and liable to obstructions and impediments. The improvements suggested are represented in the cut at the head of this article. A being the boiler, B the feeding chamber, C the float, D the steam valve, E the induction valve, and F the feeding valve. The float has liberty to rise or fall freely and independently of the vertical valve rod* for several inches; but attached to the float above and below, are horizontal springs which by coming in contact with the feeding valve in their descent, or with a nut or flange on the rod near the upper valves, in their ascent, operate the three valves at the same instant. The little cross head which supports the upper valves, is either elastic, or is connected to the rod by a spring, so as to counteract any slight expansion or contraction of the vertical rod which might otherwise prevent the closing of the steam valve and feeding valve at the same instant.—The float springs are not expected to either open or close the valves till they have become bent in some degree, so that when the valves leave their seats, they will be raised or depressed about half an inch with a sudden motion, and will retain that position till arbitrarily changed; for it will be seen that when D and F are closed, the pressure of steam on D tends to keep it closed, besides the weight of the valves and rod; and that when these are open and E is closed, this valve has the pressure of steam upon it on the chamber side. The induction pipe E may be extended down to a reservoir, or through the bottom of a vessel to the water several feet below the boiler, and when the valve is open, the steam from within the chamber will pass down the pipe till it meets the water (for the water will have been expelled from the valve by the heat thereof) and will become condensed, till a sufficient vacuum is produced to draw the water into the chamber; but it is thought best to place the reservoir as high as the chamber, that gravity may favor the induction of the water.

*A drawing of this plan was on our table prior to the plan submitted by Mr Ten Eyck, which is inserted in another column.

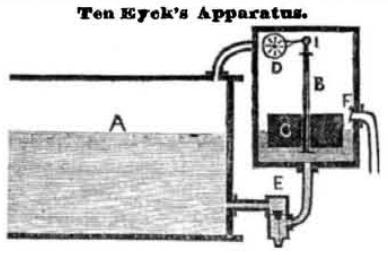
New Propellers.

A new method of propelling ships, boats, ect., has been invented by S. R. Parkhurst, consisting of a series of upright wheels, ranged along both entire sides of the vessel, and impelled by the direct action of a steam engine. The invention has been approved of in England by scientific and practical engineers, and a company formed there to buy the patent and apply the machinery to vessels. A set of these wheels for a steamboat is now in process of construction in this city, and is expected to be in operation before the end of August.

Patent Clock.

A Metallic Clock patented by Mr. Johnson of Ithaca, has lately been erected in the Presbyterian Church at Elmyra. It possesses many qualifications such as simplicity, strength and removal from the jar of the bell, the works regulating the time being in the basement and moving the machinery above by chain pulleys and wheels. Its expense is said to be trifling.

Ten Eyck's Apparatus.



We here present a plan invented by Mr. Morris Ten Eyck at Harlem, N. Y., for supplying steam boilers. It will be seen that this apparatus resembles in some respects, that of Mr. Treadwell, which was described in No. 36.* Of this plan a sectional view is presented, of which A is the surface of the water in the boiler; B the feeding chamber, C the float, D the steam valve, E the feeding or supplying valve and F the induction valve and pipe for receiving water from the reservoir.—The steam valve D is a circular perforated sliding valve attached to the inside of the chamber, and communicates with a steam pipe from the boiler. A horizontal lever projects horizontally from this valve and is connected by a rivet joint at I, with a vertical rod which passes down through the float, having a flange near the joint and another below the float, so that when the float, (which slides freely on the rod) by descending, comes in contact with the lower flange, it depresses the lever and closes the valve; and when the float rises and comes in contact with the upper flange, it opens the valve, then admitting the steam and permitting the water to pass from the chamber, thro' the valve E to the boiler.

*A letter received from Mr. Ten Eyck, and containing a drawing and description of his apparatus, bears date 3 days later than that from Mr. Treadwell, containing the description of his plan. However, the buoyant float in a chamber separate from the boiler, cannot be claimed by either, as it has been frequently introduced before; but the conical steam valve connected to, and governed by the float is evidently original with Mr. Treadwell, and is probably all that he would desire to hold or claim.

Rodmer's Improved Marine and Stationary Engines.

We have received a drawing of a new Compensating Steam Engine, By J. G. Bodmer, London. It is furnished with his valuable expansion gear, and is calculated to work with steam at a pressure of 60 pounds per square inch above the atmosphere. It would be impossible to give a correct explanation of it without a diagram, but it is spoken of highly by Mr. Johnson, Editor of the Engineers' Magazine. The improvement consists it is said, in a greater amount of power according to the area of the cylinder and stroke of the engine, than that possessed by any other kind of engine; also a saving in fuel by a vacuum being formed by the action of double pistons, whereby the steam expended is returned to feed the boiler in a novel manner, thus requiring but a small amount of fuel to keep up the steam to the most powerful expansive degree. There is, however, a complexity about the operation which time and experience, to our view, is required to prove any superiority at all, over engines now in common use.

Anti-Inflammable Cotton.

A physician in Georgia in recently attempting to prepare gun cotton from a receipt sent him by a brother physician, he was unsuccessful, and found, to his astonishment, that his cotton would neither explode nor ignite, being anti-inflammable. On investigating, to find out the cause, he found that he had not used the right acid, muriatic acid we suppose. He repeated the process, and the result was the same; so that he claims to have discovered a method of rendering cotton incombustible. He says that this cotton can be prepared with little expense, as he has tested the matter sufficient to know that it can be manufactured into cloth, the lint and texture of the cotton not being in the least injured, but capable of being made into clothing with as much ease as from the common material.

Ventilating Glass.

A patent has recently been secured for an invention of what is called "Ventilating Glass." It consists of panes of glass through which small holes are drilled obliquely, an inch or an inch and a half apart, thus giving an upward direction to the current of air.

A Great Invention.

It has long been the study of the ingenion to discover a remedy for the injury done of canal banks by the action of the water thrown against them, by the passage of the vessels through their waters. This discovery has at length been effected by a Mr. Beach of Baltimore, who has ascertained, by sufficient experiments, that moveable side pieces, fixed on either side of the stern of the boats, will effectually prevent the flow of the waves to the shores. In addition to this invention, Mr. B. proposes to propel the boats by a steam apparatus and a screw-wheel, by which the speed of the boats is increased some four fold.

American Ingenuity.

Mr. V. Cochrane of Philadelphia, the inventor of the three chambered cannon has invented a saw mill and machinery by means of which timber can be cut at any angle. The British Admiralty have ordered the invention to be constructed at the Chatham & Plymouth Dock yards. Mr. Cochrane appeared with his invention at one of the Marquis of Northampton's Soires and was much distinguished, the Journal of Bells' Letters London, also speaks in high terms of the value of his invention.

Ships on Fire.

A plan for extinguishing fires on board of sailing vessels has very recently been proposed which should be immediately brought into use. Eight scuttle ports or holes are to be made on each side of the vessel, below the water line. Connected with each of these is an iron rod extending upwards to the deck, by means of which they can be instantly opened; admitting a perfect flood of water. On the occurrence of a fire, one or more of these ports can be opened as the nature of circumstances demands, and on the admittance of sufficient water they may be at once closed, no matter how rough the sea. The water can be then pumped out in the usual manner.

New Method of Producing Medals.

Dr. Paterson, of Philadelphia, recently exhibited to the Philosophical Society, a bronze medal of President Polk, prepared at the U. S. Mint. The medal was the representation on a small scale of a much larger medallion formed in wax, as a portrait from life.

"The wax medallion being covered with a metal dye powder, is by the electrotype process and a subsequent transfer in sand, made to form a mould, from which a new medallion is cast in fine iron. The iron medallion is then placed under the action of a portrait lathe propelled by steam, and by the continued action of the lathe, a die is cut of the desired size, and of softened steel. The die is then slightly retouched, and being afterwards hardened, is applied in the ordinary manner of striking medals. This medal is beautifully finished, and bears a comparison with those made by the direct action of the die sinker."

The Locomotive Superseded.

A late English paper says:—"We had the privilege; yesterday, of a "private view" of a new invention by Mr. William Martin, the Natural Philosopher, which, to use his own expressive phrase, will "hobble Hudson." It is to "supersede the locomotive." Mr. Martin dispenses with coke and steam, and falls back upon hand labor. Two or three men, turning a crank, will move a train at the speed (as the Americans would say) of "greased lightning." We congratulate Mr. Martin on his great mechanical achievement. Its simplicity is remarkable."

Heat Without Fuel.

Important as cheap fuel may be, to be able to do without it altogether, is more important still. A Hungarian chemist has taken some promising steps towards making this possible. He places in contact two iron and one copper cylindrical plate, highly polished, turning on an axis at the end of a lever, with a balance weight at the end to keep the plates in contact, when, by means of very simple apparatus and trifling exertion, a glowing heat may be produced in five minutes, and maintained with ease.

University Telescope.

The Dutch ship Grotius, which has arrived in this city from Holland, brought the remaining parts of the great Telescope for Cambridge University.

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NEW YORK, JUNE 12, 1847.

The Mechanical Genius of the Ancients, Wrongly Directed.

Egypt appears to have been the cradle of mathematical and physical science, and at one period was the most civilized nation in the world. From the Egyptian priests, the Greeks derived their first knowledge of the elementary part of mathematics, and as Greece arose step by step from her Pelasgian barbarism to the lofty heights of civilization and learning, as steadily did she advance in mechanical discovery ; and those monuments which amid the wreck of empires and the crush of thrones, preserve the strong testimony of Egypt's ancient greatness and glory, are as indubitable testimony of her mechanical genius, as of her architectural conception ; and the splendid temples of Greece, the remains of her unsurpassable sculpture, are as strong evidences of the same genius, as her poetry is of her poets. The instruments necessary to execute some kinds of work, need as great a creative genius in formation, as the conception of the work itself. The machines employed to erect the Pyramids and Obelisks, are now a greater wonder, than the design of their erection, or the wealth expended on their execution, but history is silent on the subject; yet there can be no doubt that the instruments used in Grecian sculpture and architecture, have left the impress of mechanical genius upon every monument of ancient civilization—it is written upon every bounding curve of the *statue*, seen in every waving line of the Temple, and beheld in every pondrous block of the *pyramid*. Yet these are but the shadowings of the benefits conferred upon the world by mechanical genius.

The names of Euclid, Apollonius, Hero and Archimides, are famous in the history of Practical Mechanics. The latter by his splendid mechanical *genius*, threw such a ray of glory around the Island of Sicily during his lifetime, that tradition, for his wonderful inventions, holds him up more as a demigod than a mortal. It is said that he was acquainted with the properties of the crane, the screw and many other machines, and his defence of the city of Syracuse against the mighty power of Rome, by the destruction of the Roman ship ping with his machines, is ample testimony of his inventive mind and his acquaintance with Mechanics

" Inspired by thee, with scientific wand
Pleased Archimides marked the figured sand,
Seized with mechanic grasp the approaching deck,
And shook the assailants from the inverted wreck,
Then cried the sage, (with grand effects elate,)
And proud to save the Syracusian State,
While crowds exulting shout their noisy mirth,
Give where to stand and I will move the earth."

Yet it must be confessed that although the ancients displayed great mechanical genius, they seldom, if ever, applied physical science to the useful arts. National glory and national grandeur, were the only objects on which the mechanical genius of the ancients were lavished. Their philosophy was repugnant to any invention which had for its object the benefit of the mass of mankind. In the ancient republics, priests, soldiers and *magistrates* composed the state, mechanics were only the necessary appendages of it, hence any discovery or invention for the elevation of those engaged in despised occupations, could not be expected to be countenanced by the Greeks or Romans, whose pride revolted at the disgrace of laboring at mechanical occupations and left those callings to be pursued by the serf and the stranger. This very element in ancient polity and ancient philosophy, was the very cause which prevented in the working classes of those days that developement of mechanical genius, which by the construction of machines in agriculture, manufactures and commerce might have elevated both Greece and Rome to that pinnacle of greatness on which some of the modern nations now stand, and which, without any thing derived from the ancients but a slight knowledge of mathematics, has conferred universal blessings upon the whole race of man. Every effort of genius is prostituted, unless directed for the purpose of benefitting the human family.

Woolen Manufactures.

Half a century ago, not a pound of fine wool was raised in Britain or America, and it is only eighty-three years ago since the Elector of Saxony received the first flock of fine sheep into his dominions—a present from the King of Spain. For a long time it was a life penalty of slavery in Spain to export a single sheep, but in 1781 a few were smuggled over to England with great expectations of profit, which however proved chimerical. In 1809 when the crown flocks of Portugal were sold for debt, Mr. Jarvis our Consul at Lisbon took the opportunity of purchasing fourteen hundred and sending them home—from these it may be said, have sprung the thousands of flocks which now roam luxuriantly over our fertile plains and boundless prairies. One strange difficulty however, has always appeared in the manufacture of our finest wool into what is called felt, and the phenomena appeared the more strange, inasmuch as saxon sheep imported here, lost all their original properties of producing felt wool, even one year after importation. Whether the soil or the climate is the cause of this, is something yet to be discovered, but such is the fact. But what nature seems to deny us, art at length has made the discovery of, felting by a chemical process our common wool into the most beautiful felt cloth, equal to any Saxon. One factory is now in successful operation at White Plains, Westchester County, and another will soon be in operation near Paterson, N. J

The Planet Neptune.

This planet is proved by the examination of the manuscript of Lalande to be the missing star which that astronomer observed on the 10th of May, 1795. His manuscripts do not contain the *doubtful marks* which are in the printed copy, but they do contain *another observation of the planet* made on the 8th of May, and which is not in the printed copy.—The truly important discovery of the ancient observation of Neptune is attributed, in some European publications, to Dr Peterson of Altona; but it undoubtedly belongs to the American astronomer, Mr. Sears C. Walker of Washington, whose thorough and admirable researches upon this point are published in the proceedings of the American Academy of the 16th of March.

It follows, almost necessarily, from this observation of Lalande, that Mr. Walker's orbit differs very little from the true orbit; that the eccentricity is so small, as, by Le Verrier's admission, "to be inconsistent with the perturbations of Uranus;" and Professor Pierce's conclusions seem now to be unquestionably established, that Neptune will not account for the observed irregularities in the motions of Uranus; that it is *"not the planet to which geometrical analysis had directed the telescope;*—and its discovery by Galle must be regarded as a *happy accident*."

Iron Trade of America.

The whole quantity of hammered and rolled iron consumed in the United States in 1830 was 144,666 tons, 31,800 of this was imported, and the value of the whole was about $5,762,000. In 1837, 250,000 tons were manufactured in all the States, and in 1847, it is computed that 350,000 will come short of the amount. Iron is the most valuable of all the metals. It can be melted like water and moulded like plaster of Paris. It can also be welded, a quality possessed only by one other metal in the same manner. Our bridges, our houses, our ships, and our carriages will all yet be made of this metal.

Another Chain of Railroad.

The Railroad from Boston to Ogdensburg is to cross Lake Champlain at Rouses' Point near the Canadian line by a bridge 3,800 feet long; not quite so long yet as the Cayuga. It will run through Swanton and St. Albans to Burlington. At Rouse's Point a junction railroad of twenty miles long is to be made which will connect the St. Johns railroad which goes to Laprairie near Montreal. Massachusetts has now 710 miles of railroad at the value of $30,000,000.

Tunnels.

Since the tunnel under the Thames was completed by Burnell, projects of the same nature have been not so much the constructive operation as of talk and speculation. A few years ago it was proposed to tunnel the Hudson at Albany, and now the Canadians, perhaps somewhat excited by the splendid chain of northern railroads now in contemplation, have come to the resolution of tunnelling the St. Lawrence at Montreal. This can be done as the bottom of the river there is of good rock, and the distance to be tunnelled only three fourths of a mile. It was extremely difficult to tunnel the Thames, because the foundation was shifting sand, and after hundreds of thousands were expended, it was only completed by running huge cast iron tunnels gradually forward every few feet as they proceeded, the men working under the iron covers which were of sufficient strength of themselves to support the weight of the river at its greatest depth.

Within the past few years tunnelling has become not uncommon in England, especially railroad tunnels. There is a tunnel between Manchester and Leeds of two and a half miles long, and under mountains from 700 to 1000 feet high. There is another between Manchester and Liverpool 2,750 feet long and 25 wide. There are two in America, one on the Great Western Railroad between Pittsfield and Albany and another between Baltimore and Ohio.

Tunnels will soon become common, for we have no doubt, but that with huge iron tunnels no river need be an impediment to rail road construction.

Buffalo and its Commerce.

The Commercial Advertiser of Buffalo states that so great is the influx of produce to that port, business is brought almost to a stand—still, not only for the want of canal boats in which to tranship it, but for want of means of storage. Every thing is employed in relieving the vessels constantly arriving, laden with produce; yet the accommodations are not sufficient, and unless more facilities are afforded, the increasing products of the West will of necessity seek some other outlet.

During the two first weeks of May this year, 369,345 bushels of wheat, and 217,223 bbls. of flour were received; for the same period last year, when the supplies were considered very large, the receipts of wheat were 183,173 bush. and of flour, 120,860 bbls. Compared with previous years, the difference is still greater; and, in 1842, but six years ago, there were received during the same period, 72,400 bush of wheat, and 93,200 bbls. flour.

English Navigation Laws.

Evidence have been taken before a committee of the House and the result has been a settled conviction, of the necessity of removing navigation restrictions. A death blow is impending to exclusive colonial protection. The English Navigation Laws will not fall alone; all duties upon foreign timber will go with them, and then the Canadas and the United States will be on the same footing with regard to the market of the mother country, and the St. Lawrence cease to create any commercial distinction between the countries it divides.—It is certainly susceptible of demonstration that the trade of the Canadas would be worth more to the home country if merged into the Union, by Free Trade, than it is in their present condition. For the military and naval *defences* of these Provinces costs England at least *five dollars* a head for every man, woman child of their population.

Southern Factories.

The largest building for manufactures in the South, is now being capped with a roof, at Tuscaloosa, Ala. It is 150 feet long, 50 wide, and 4 stories high above the basement story. It will be filled with 10,000 spindles. The machinery is expected soon, and during the summer it will be put in operation.

The Laurel Factory Companies, Maryland, or one of them, have received the contract for the manufacturing of all the machinery of the new factory at Alexandria. The "Mount Vernon Cotton Manufacturing Company" are about to erect their buildings without delay, with accommodations for 100 looms and 3000 spindles. The Factory will consume about 1500 pounds of Cotton per day in the manufacture of heavy sheetings.

Rotary Engines.

The Mechanical ingenuity that has been expended in the invention and improvement of rotary engines, perhaps exceeds that of all other machines, and from the great amount of time, labor and thought expended in devotion to construct something of this nature to entirely supersede the parallel and horizontal engines, we might reasonably have expected that were it possible for any superiority to exist in the shape and motion of rotary engines, such advantages would long since have been developed and their universal use have been the result. Such however is not the case, they are as yet but little used and when they have been tested, in most cases have been laid aside, as being far inferior to the other motions.

That rotary motion seems to be the most natural and economical for effect, none will doubt, as all engines have to be constructed on a principle tending to circular motion, the crank and fly having to be used in giving a preponderance to the pistons in passing the *dead points*.

The stars roll in their circuits, and the earth spins on its axis—and taking nature's motions as a guide, is it not reasonable to suppose that the rotary motion is the best and most economical? Such reasoning appears to be sound—but experience has as yet failed to prove it.

The Patent Office at Washington is filled with models of rotary Engines. James Watt had a patent for one, but it was of no value, and he laid it aside. Every day and every week something regarding improvements, or old methods revived are displayed. That a successful Rotary Engine can be made, we dare not doubt, but one grand object must be taken into consideration by those who would construct such a machine of large dimensions, viz :—the excess of centre speed to the speed of the circumferance, a point which has been entirely overlooked.

Universal Penny Postage.

Elihu Burritt, the great blacksmith, is laboring assidiously to get the British Government to adopt a system of *ocean penny* postage. It may not be generally known that although the British Government is very liberal in her home postage regulations—charging only one penny a letter, that she charges 20 cts., on letters sent from the United States. Our liberality, we hope, will not pass unappreciated, as our government makes no distinction.

Copper.

The resources of our Western States in the production of copper, seem to be inexhaustible. Besides those already in full operation, there have just been opened two or three rich veins of ore near the northern shore of Huron, within thirty-four hours run of Detroit. In a single shaft, 150 tons have been taken out, of excellent copper, ready for shipping.

Ingot Copper.

The Baltimore Copper Smelting Company, have recently commenced the manufacture of refined ingot copper, designed for the supply of founders and other workers in brass, and as far as it has yet been submitted to the test of the practical worker, is said to have met with decided approval.

A proposal has been made in England to light all the railways by means of gas lamps, placed at intervals not exceeding forty-five yards.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

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The Oregon Rail Road.

(*Continued from No.* 37.)

I will now give you the simple plan by which I propose so carry out this great work. As I have said before, I do not ask Congress to grant to me even one acre of land until the road is completed in advance. I first build 10 miles of road at my own expense, which will cost $20,000 per mile; one mile of the land sixty miles wide is 38,400 acres, allowing for waste land and expenses of sale, will, at $11-4 per acre, produce about $40,000, equal to build 2 miles of road. When the 10 miles is completed to the satisfaction of a commissioner appointed by government, then and then only, I have 5 miles or one half of the lands with which to re-imburse myself, the other half to be sold and the proceeds held in the treasury as a fund, and so on for the 800 miles. Afterwards, to the mountains and to the ocean, when the entire 60 miles do not furnish means to continue the road, then this fund is to be applied to that purpose. And, gentlemen, from your own experience, I think you must be persuaded that the facilities which the road must undoubtedly give to settlement, would furnish means quite as fast as it could be applied to the construction of the road. You will perceive the plan is founded entirely upon the wilderness lands, and can only be carried out by connecting the sale and settlement thereof with the building of the road, which cannot fail of being of vast importance and benefit to the settlers. With this road commenced, how changed would be the condition of immigrants? Now they land upon our shores, from their inexperience in a strange land their little means is soon wasted, and many become burdensome to our citizens. And those who go to the far west are obliged from necessity to select their homes remote from any means of communicating with markets, without any reward for labor until the first crop is grown, and then the cost of transit takes all, nothing left for an exchange for other comforts and necessaries of life, he is surrounded with an abundance of earthly products and still wants; he does not get a reward for his labor to aid in sustaining the other branches of industry.

But commence this road, and the immigrant would have a fixed point of destination. He would not be detained in our cities, but pass on through our river, canal and the lakes, to his new home. If he had 50, 100 or more dollars, he could give one half towards paying for his land; the other half would build his cabin and get in his first crop. Then his labor would be wanted on the road to pay the balance for his land The next season his crops ripened, and wanted by those who come as he was the season before. And those who come without money, their labor on the road would purchase the land, and they too would soon become independent; and comfort and happiness would surround all. And what would be the moral influence? Necessity often, yes, almost always, tempts man to vice and crime; but place him where his labor receives its just and proper reward, and you raise him. I care not how low he may have been, you elevate him to what his Creator intended him—to a man—and he may rear an offspring, respectable, honorable, and filling the highest places in the land.

The questions have been asked by many:—"How is the road to be protected from the Indians, through a wilderness of such vast extent? And how is it to be supplied with water and fuel? And what will support it and keep it up?"

To the first I answer, if the road is built, it can only be done by the sale of the land and settlement of the country on its line, which will be a sufficient protection, and thro' where the land is poor, the constant business and operations of the road would protect it. The Indian disappears with the game and it cannot be supposed that game, such as buffalo and elk, the dependance of the Indian, would remain long in the vicinity of a railroad constantly in use as this must be, even for its construction.

Fuel and water. Of the former, coal, there is an abundance all to the Rocky Mountains and the other side. It has been found on the Columbia river and Vancouver's Island.

Water; to the Missouri, we cross living streams each ten to twenty miles; from the Missouri to the Pass, we go parallel with, and if necessary, directly on the banks of rivers, from the Pass to the ocean, probably follow the course of the streams.

The last question is answered partly by the answer to the first, that the settlement which must take place will, of itself maintain it. And it will be seen that this will be the shortest, cheapest and most direct route even from Europe to Asia, and all the Islands of the Pacific and Indian Ocean.

Mr. Whitney here exhibited a large skeleton map showing our exact position, in the centre of the world, with the Atlantic on one side, and the Pacific on the other side of us.—Europe, with her population of 250,000,000, and Asia, with 700,000,000, this road to be the centre of, and thoroughfare of all. He, also exhibited and read tables of distances for the present route around the cape, and the distances for routes by proposed canals, all compared with this railroad, which tables are at foot. He also explained and described the importance of the commerce of Asia, China particularly, and showed conclusively that it may all be brought on this road. He also showed that the expense of bringing teas and suchlike goods from China to New York by this road, the lakes and our canal, would be as low as it now is by ship.

(*To be continued.*)

Construction of Sea Walls and Breakwaters.

By the expansive views taken by the Government of Holland lately in regard to the reclaiming of vast tracts of land from the bosom of the ocean, much attention has been directed to the mechanical means instituted for such a purpose, and also the best means to resist the encroaches of the sea upon those parts which have been long subject to its ravages. The subject is an interesting one to all nations, especially those engaged extensively in navigation.

It appears from collected facts, that sea walls of massive mason work are more liable to be destroyed by the force of wind and wave, than those which are called concrete. The mole of Venice of 16 miles extent, built of smooth blocks and a triple tier of wall had been nearly destroyed by the augmented force of the waves which rolled from the first, second and third walls successively. The second mole was constructed with a sloping face at an angle of 15°, and has been found to be more durable. The vertical walls of Port Patrick, Ireland, though built of the finest stone, were also nearly destroyed and had to be increased in thickness nearly 80 feet, and the forts of Boulogne, France, the walls being nearly vertical, were subject to the same destructive influence. The original lake wall at Buffalo, though built of smooth blocks, was not found to be so effective to the resistance of waves, as the rough blocks which form the last stone beach.

It has been found that the power of a wave is exactly proportioned to the height of its crest above the hollow between the waves, and the greatest power that a wave can exert, is at the moment of the crest breaking over into the hollow, 32 feet is the greatest average unbroken height of waves. The motion of waves is circular, moving on a vertical plane.

From these data, it has been found, that sea walls of a slight concave cycloidal form, have been found to be the best for resisting the impression of storms, especially when a recessed parapet was built behind the outer wall.

The breakwater should be a great deposite of large and small materials mixed. The form of a parabole (conic) has been found to be the best, especially if advanced groynes and concrete walls are used, as at Dover, where such walls had been built merely for retaining walls, and had been found to answer so well, that the sea shingle had accumulated to such an extent that the force of the waves had been thrown back and did not approach to within 100 feet of the former base. Strong made cement mixed with small stones has been found to be excellent material for constructing piers, on the top of which a tier of blocks should be laid. In the course of erection it is essential to lay an outer parapet of wood as a defence, until the inner wall is completed.

Antediluvian Monsters.

The teeth of some antediluvian animals, several of these weighing eighty pounds each, have been found at Lamarsh, England.

Formation of Rocks.

(*Continued from No.* 37.)

Sir James Hall afterwards made some interesting experiments with a view to ascertain the circumstances under which basaltic rock is formed by nature; but, as in these he was not the first inquirer, we pass them by, in order to notice his investigations respecting the formation of sandstone. This rock is also a very abundant one throughout the crust of the earth, forming numerous beds alternating, with nearly all the other aqueous rocks. Its utility in building is well known. Sandstone is easily seen to be a composition of sand, for it may readily be pounded into that form; but the wonder is, how sand has been massed into so hard a consistence. Sir James Hall performed a series of experiments, which showed at least one way in which great layers of loose sand might be agglutinated at the bottoms of seas, so as to form strata of rock.

"In the little valley of Aikengaw, at the eastern extremity of the Lammermuir Hills, Sir James observed the gravel which occupies its bottom, agglutinated in several places into a mass of conglomerate, very solid in the centre, but becoming gradually looser on both sides, till it passed into the state of moveable gravel. He was soon satisfied by applying chemical tests, that the agglutination was not produced, as in some cases, by calcareous matter. A few miles lower down the valley, he found a crag of sandstone, which yields much to the action of the air, and in dry weather is covered with a white efflorescence having exactly the taste of *common salt*. Combining the two facts, Sir James inferred that sea salt might be the substance which, by serving as a cement, produced the consolidation both of the sandstone rock and the conglomerate. He immediately resolved to follow out this idea by experiment, and after many trials succeeded in forming artificial sandstones of various qualities, some of which were firm enough to be dressed by the chisel, and some have resisted exposure to the elements for years.

In his first experiments he put into a large crucible a quantity of dry salt, and a quantity of loose sand; the whole being heated from below, the salt ascended in fumes through the sand, and converted it into a solid stone. The fumes of the salt seemed to act as a flux on the silicious matter of the sand, and, in fact, to serve a purpose exactly analogous to what they do in glazing potters' ware.

Sir James's object, however, was to illustrate the Huttonian formation of rocks at the bottom of the sea; and he wished to show that the presence of a body of water above the sand even at a moderate temperature, was not incompatible with the necessary degree of heat, nor the success of the experiment. He filled an iron crucible, eighteen inches high, to the brim with sand and strong brine, the water rising three inches above the sand. An empty gun-barrel, closed at the lower end, was sunk amidst the sand to within an inch of the bottom of the crucible, that by looking in at the upper and open end of the barrel, the temperature of the saline mass at different heights might be seen. The crucible was exposed to a strong heat, fresh brine being constantly added as it boiled off; and it was distinctly seen by means of the gun barrel, that while the sand at the bottom became red hot, the water at the top was merely in a state of moderate ebullition. After remainlng in the fire for some hours, it was suffered to cool, and when examined, it was found that the sand at the bottom had concreted into a solid cake of most perfect sandstone, while the part above, which was still drenched with brine, remained permanently loose.

Sir James used black lead crucibles at first, but found that the action of the brine upon them impeded the success of the experiment. He found also that the process succeeded with common sea water instead of brine, only it was necessary to continue the operation for three weeks, always introducing new supplies of water as it boiled off, till a sufficient quantity of salt was accumulated. The substitution of a strong brine, containing one-third of its weight of salt, merely shortened the process without altering the result. He observed, too, that the longer the operation was continued, the more solid and durable was the sandstone produced; and hence, as nature has an indefinite command of time in her processess, we see why her products should be so much more perfect than those formed in our laboratories. The presence of the water above was so far from being inconsistent with a due degree of heat below, that by supplying fresh brine in sufficient quantity, it was found possible to keep it at a moderate temperature at the top, while the sandstone below was at a full red heat.

Common sand was the substance used in Sir James's earlier experiments, but he afterwards found that pounded quartz or gravel could be agglutinated into a solid body by the same method. For the sake of negative evidence, the process was repeated with *fresh water*, keeping every other circumstance the same—but not the slightest approach to consolidation was produced.

His theory of the process is as follows: The first action of the heat on the sand drenched with brine is, to drive off the water from the lower portion of the mass, and to convert the salt and sand into a dry cake, which, if taken out and immersed in water, would crumble down. The application of the heat being continued, the cake becomes red hot, the salt is converted into vapor or fumes, which mix intimately with the sand, and causing a partial fusion of the contiguous particles (as in the glazing of potters' ware,) produces an agglutination.

(*To be continued.*)

Correct Time.

Mr. Editor:

A very simple method of getting correct time was accidentally brought to my notice: and not wishing to keep any thing hid that may be of service to others, with your permission, I will occupy a small space in describing it. I have compared this plan with regular astronomical observations, and find it to agree within a fraction of a minute. Its beauty consists in its simplicity, not requiring any instruments; a good eye, and an almanac, is all that is wanted. I do not claim for it originality, but noticing the great difference in Public Clocks which are considered standards, and with the laudable desire of setting them right, and through them the public generally, submit the following:—

Provide yourself with an almanac, and on any clear evening just before sunset, post yourself in a position where the declining Orb of Day will not be obstructed; then watch the sun until the last speck disappears, when *immediately* note the time by your watch, and if it agrees with the time in the almanac, well; if not set it. Example: If on the 10th of June the sun sets 40 minutes after 7 by my watch, and by referring to the almanac I find it should be 42 minutes after, I immediately set my watch 2 minutes faster, which make it exactly right Early risers on the East side of the city can take the sun's rising as their guide. By such means uniformity of time will be obtained, which is of so much importance in every day affairs.

A. WESSELS.

New York, June 8, 1847.

Daguerreotype.

Daguerreotype is the result of the action of light. It consists in having a plating of burnished silver prepared with iodine on a copper sheet, so placed that the rays of light reflected from the object to be drawn will fall upon it. For this purpose, the plate is put in a *camera lucida*, and afterwards submitted to the action of the vapors of mercury when a complete representation of the object is given. According to the intensity of the light, so will be the action on the plate, for a good representation, requiring a longer or shorter time, in carrying on the process. A smooth skin being highly reflective, looks well always on a daguerreotype. Freckles on the face, being irreflective, exhibit always dark marks. The shading of the room, where the likeness is taken, has also a wonderful effect in making a striking representation If it was black, the impression of black clothes could not be taken. It is because of the reflective and irreflective nature of some colors, that professors of this art take advantage in the arrangement of their rooms, so that they can take the outlines of figures, the back ground being different from the object represented.

The North River steamboats have been forbidden to land emigrants at Albany.

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TO CORRESPONDENTS.

"J. M. O. B of N. J."—We think that the pure spirits of turpentine is best for the purpose which you mentioned. The same machine, or nearly that which is in use for cylinder calico printing, might be applied to lay on your paste. Three thousand yards might be pasted by one of those machines in one day.—Your method of supplying boilers with water appears to be good, but as you have suggested we should like further details.

"H. S. of Mass."—Your plan for watering streets is original, but a patent for such a purpose might soon be superseded, if it was expensive, by simply using a perforated *nozzle*.

"O. B. of N. Y."—We have answered your communication regarding steel rollers by mail.

"E. G. of Mass."—Your improvement in the Rotary Engine ought to be made the subject of a fair experiment. We have received your last communication.

"L. A. G. of Mass."—Your letter in relation to the Brake had been mislaid. Would you send a better defined drawing and explanation The cut will cost $4.

"S. W. of H."—You must have a nonconductor that can be delicately wrapped round the silver wire. Silk thread is the best. You must as certain whether or not *they* would float after having received a shock.

"C. of N. Y."—Your Rail Road Velocity Guage is ingenious and simple. There is nothing of the kind in use that we are aware of.

"O. P."—Your proposition cannot be embraced at present.

"W. B. of C."—There has been a machine invented and put in operation at Cincinnati, Ohio, that is said to turn out pegs by the bushel, but who the inventor is, or whether it is in reality a practical machine, we have not been informed.

"A. H. of S."—We can furnish you with the first volume of the "Sci. Amer." bound, for $4, and the first 27 Nos. of the present volume for $1.

"N. F. of Gt. Barrington."—We shall inform you the price of the Stave Machinc mentioned in this week's paper, when we give the illustration of it.

"J. W. of Q."—Your funds were received duly.

☞In consequence of the frequent mis-direction of letters addressed to this office i. e., in often directing to the Editor, letters that pertain to the business of the Publishers, and vice versa, we are induced, in order to remedy the difficulty, to request our worthy correspondents to address all their communications hereafter to the publishers, whether they be upon business of the office, or soliciting or imparting information upon scientific or mechanical subjects.

Our Worcester, Mass., Patrons.

If our subscribers at the the above place have not been served regular with the Scientific American for the past two weeks, we would inform them that it is not our fault, but in consequence of the defalcation of our agent at that place. Arrangements are being made with the successor of our former agent, and we hope the large number that has been formerly taken there, will not be diminished.

The Yankee Blade.

The publication of this paper, formerly in Maine, has been recently removed to Boston, and an entirely new plan adopted. More enterprise and more talent has been interested, and it is now one of our largest and best literary weeklies. Subscription, $2 a year. Cheap enough. It is published by Matthew Gould & Co., Boston. J. A. Tuttle & Co. 116 Nassau streets are the agents in this city.

Iowa State Debt.

The new constitution of Iowa prohibits the creation of a debt of more than $100,000; but as there were many expenses incurred in becoming a State, proposals have been issued for a debt of $55,000, payable in ten years, interest semi-annually, in New York.

Commerce of New York.

The increase of imports into New York during the last five months, compared with the same months of 1846, is $18,763,273; of which about one third was specie. Increase of exports, $7,107,272. The increase of duties is $152,221,95.

FIRST VOLUME.

We would inform those who have been disappointed in procuring the whole of the first volume of the Scientific American, that we have recently come into possession of a few complete sets of the last half, (i e. from Nos. 26 to 52 inclusive) which we will dispose of at the subscription price, viz. $1 per set.

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates:

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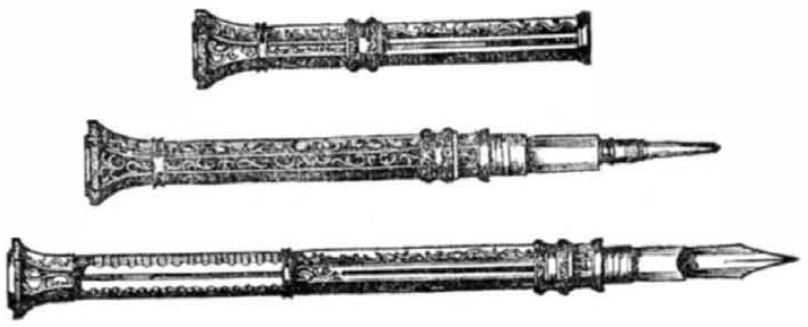

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New York, Sept. 1, 1846. o24 tf

FASCINATION,

Or, the Philosophy of Charming.

Illustrating the Principles of Life, in connection with Spirit and Matter.

BY JOHN B. NEWMAN, M. D.

The above is the title of a work just published and for sale at this office. It is designed to to convey a knowledge of Animal and Human Magnetism, which should be examined and understood by all We cannot give a more correct idea of the work than by the following from the table of contents.

CONVERSATION I.

Charming.—Popular views on fascination; influence of the imagination; process of fascination: snake charming; anecdotes; man charming; nervous vapor; charming of men; man can fascinate the lower animals; the lower animals can fascinate man; young persons sleeping with old; schoolmasters; savage nations; lower animals; poetry.

CONVERSATION II.

Discovery of Fascination.—Locality of heaven; material world contained in the spiritual; idolatry; discovery of fascination after the deluge; cases of cure; life principle; matter governed by laws of its own; vegetable kingdom.

CONVERSATION III.

Physiology.—That man has two lives may be deduced from the narrative of his creation; seven properties of the living principle explained; illustrations; human understanding; the soul; modelling of bone; nervous system.

CONVERSATION IV.

Double Life of Man.—Nerves of animal and vegetable life; heat insensible; separation af the two lives; phrenology; seat of the soul; two brains; organs of animal life double; insanity; sleep; sight without the eye; hearing without the ear; nervous vapor the fluid used in fascination; six stages of fascination; first stage; danger; warnings; second and third stages; fourth, fifth and sixth stages.

CONVERSATION V.

Spiritual States.—Trance of William Tennant; delirium tremens a kind of trance; Mormonism; Clairvoyance of Swedenborg, and his communication with the spiritual world; shape of the life power; amputated limbs.

CONVERSATION VI.

Stages in dieing.—Death is the sixth stage of fanaticism; no pain in dieing; illustrations; Dr. Adam Clark; account of hanging; decomposition the only sure mark of death; premature interments; theories in regard to the broin; Materialism; death bed scenes; opening of the spiritual sight; difierence between really dieing and only thinking ourselves dieing: illustrative cases.

CONVERSATION VII.

Operation of Medicine.—Purifying the blood Constables in the body; Anatomy; Physiology; Pathology; operation of medicine well known; arsenic; how to discover aiterations in the life power; illustration; active plan of treatment; expectant plan of treatment; fascination inducing disease; explanation of the water cure; homœpathy; our bodies change every seven years; vaccination.

CONVERSATION VIII.

Prevision.—Faculty of prevision; organic prevision; revealed prevision; medical practice; case of Socrates.

CONVERSATION IX.

Somnambulism.—Philosophy of mystery; Somnambulism; source of life; pain in surgical operations; somnambulism rescues fascination from the imputations of sorcery and the black art; performing dreams; Professor Upham; Captain Brown; Mr. John Wise; somnambulism induced by disease; somnambulism induced by medicinal agents.

CONVERSATION X.

History of Fascination.—History of fascination; Mesmer; fascination a key to the various superstitions of the world; directions for operating in fascination; alarming symptoms should not disconcert the operator; illustrations; the object of fascination curative; Newnham; Deleuze; conclusion.

APPENDIX.

Letter from Rev. W. H. Beecher, attesting the reality of fascination, clairvoyance, &c.

This work is illustrated by numerous engravings adapted to the subject, also a beautiful portrait of the author, who has written several works on Natural History, Physiology, Botany, &c. It may be ordered and received by return of the first mail, by enclosing the amount (50 cents) in a letter and remitting post paid, to
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THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

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Superintendant of Portsmouth, N. H.
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GENERAL PATENT AGENCY.

REMOVED.

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Charges moderate, and no charge will be made until the inventor realizes something from his invention.

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THE ART OF PAINTING.

(*Continued from No.* 37.)

TRANSFERRING PRINTS.

Lithographic and other prints are sometimes used in ornamental painting, being transferred to the surface of painted grounds by the following process :—The ground is sized with a mixture of two parts of copal varnish with one of old linseed oil, or with an article sold at the paint stores under the name of transfer varnish, which consists principally of diluted fir balsam : and the print to be transferred is put into warm water. When the sizing is nearly dry, but still adhesive, the print is pressed between two or more dry papers, to deprive it of its surplus moisture, and is then gently pressed—the print side down—on the sized ground. When the sizing is thoroughly dry and hard, the paper which adheres thereto, is again moistened with warm water, and being gently rubbed with the hand, will peel off, leaving the entire print adhering to the ground. This may be colored with transparent colors, and afterward secured by varnish. This work is frequently applied to fancy sleighs, fire engines, and omnibuses.

CRYSTALINE CHANGEABLE PAINTING.

This may be said to be the most brilliant branch, in the entire art of painting, inasmuch as the pictures produced in this line. are more brilliant in appearance than any other. It is seldom seen on any other work than nicely wrought French fancy boxes, waiters or tea-trays. It can be executed on no other ground than tin-plate, or tinned iron plate, which for nice work should be smoothly planished ; but a practitioner may work on the ordinary tin plate. The crystalizing process is effected by means of acids. Let the plate be perfectly clean, and placed in a horizontal position; then dip a very soft brush in muriatic acid, and wash over the face of the plate with it, and immediately immerse the plate in clear water. Wipe the plate dry, and repeat the process three or four times, and the plate will have acquired a beautiful changeable crystalline appearance. Another process which gives a finer and differently formed crystaline figure, is effected by a mixture of equal parts of sulphuric and muriatic acid, diluted with double the quantity of water. For this process, the plate should be annealled, by being held over a charcoal fire until the tin on the plate begins to melt ; but it should become cold again before the acid is applied. A still greater diversity of crystaline figures may be produced, by applying a hot iron to the under side of the plate while in a horizontal position, and moving the hot iron slowly in various directions over the surface of the plate ; thus by anuealing some parts of the plate while other parts escape, the crystalization, whether produced by the muriatic or mixed acids, will appear differently in different parts. By a little experimental practice, a learner may be able to produce such an appearance as may suit his taste. Having prepared the ground in this manner, and provided a full variety of transparent colors (heretofore described for painting on glass) and some fine hair pointed pencils, proceed to draw the outlines of the designed picture on the crystalized ground, observing to lay out the design in such a manner as to accommodate the crystaline figures and show them to the best advantage. On some parts of this work, opaque colors may be applied, but in such a manner that the most important and conspicuous figures, shall present the changeable crystaline appearance, in bright colors and metallic brilliancy. Of course the lights must be observed, and the same rules in applying the colors observed as in transparent paintings. Human faces must be painted opaque, unless a sufficient space of the ground may be found of a uniform shade, to accommodate it, in which case the changeability of the countenance, as the position of the picture is varied, will have an interesting effect Water views, edifices, rocks, flowers, and ladies' dresses, may be worked in the transparencies ; and especially forests, if well managed, will have a beautiful effect by their changeability, and resembling the appearance of trees and foliage waving in the wind. Also, waves of the ocean, will appear in motion, as the position of the work, relative to the eye, is changed or varied. The bronzes, gold or silver, may be occasionally applied to this kind of painting ; and the whole is to be finished and secured by a smooth coat of copal or seed lac varnish.

IMITATION PAINTING.

This branch has probably never been so much in vogue as at present. Imitations, or pretended imitations, of oak, maple, mahogany or marble, may be seen on three-fourths of the doors of houses in the cities, besides wainscotting, chimney pieces and furniture. The grounds for this work are painted with common oil paints, and of colors corresponding with the lightest parts of the materials intended to be imitated. The ground for maple is a straw color, made of whitelead slightly tinged with chrome yellow and yellow ochre. When this is dry, a thin coat of terra de sienna ground in water slightly sweetened with sugar ; and while this coat remains moist, the deeper shades, termed *graining*, are laid on with a peculiar flat brush, called a *grainer*. The first staining is usually applied by a piece of cotton cloth, and so thin as to show the ground color through it. This staining is then rubbed off, or removed from such parts as are intended to remain light, with a piece of cork. If *bird's eyes* in the wood are to be represented, a flat piece of cork with several points formed on the edge thereof, is used. It is important that the learner should have several varnished pieces of the real wood before him while practising, to guide him in forming the grains and shades, which must be performed before the graining is dry. In case of any mistake, the whole may be washed off with water, and the work re-commenced. When this graining is dry, it must receive a coat of copal varnish. In imitation of birch the same color is used for the ground, and either terra de sienna, or umber, may be used for staining and graining. For imitations of oak, the ground color is slightly tinged with Venetian red, sometimes approaching a salmon color. The principal color used in graining, is terra de sienna, with occasionally burnt umber. In this branch, a tool similar to a comb, made of soft wood, is used in removing the staining in streaks, lengthwise : and a piece of cork is used in forming the cross lights. The deeper graining is made with a graining brush as before directed. Either of the ground colors before mentioned, will answer for mahogany imitations. The principal and almost exclusive color used for staining and graining, is burnt terra de sienna; though sometimes Venetian red is used in staining, and occasionally burnt umber or gum asphaltum in the darkest shades. In this process, a part of the graining is applied, and blended with the staining by having a soft stiff brush passed over it : after which the sharper shades are formed by the grainer. The graining colors for this work, may be ground in a mixture of oil and spirits of turpentine, and this is, in some respects, less difficult to manage, than the water staining, though there is less facilitation in the process. Imitations of marble are produced on white, or light slate colored grounds, and the shading colors,—which are ground in oil—are applied immediately to the ground color, and blended therewith before the former begins to dry. The shading used in light marbles, is generally a mixture of blue, black and white, though occasionally green, red and yellow are used ;—true marble being often shaded with each of those colors. In imitating the Egyptian marble, the ground is painted nearly black, and the graining or clouding is formed with various lighter colors. In all attempts at imitation, the practitioner should be furnished with choice specimens of the real article, and imitate by sight and judgment; as no specific rules can possibly be given whereby he can succeed without a sample.

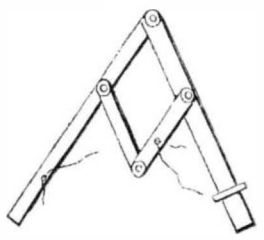
(*To be continued.*)

Purifying Water.

A table-spoonful of pulverized alum, sprinkled into a hogshead of water, (the water stirred round at the time,) will, after the lapse of a few hours, by precipitating to the bottom the impure particles, so purify it that it will be found to possess nearly all the freshness and clearness of the finest spring water. A pailful, containing four gallons, may be purified by a single teaspoonful.

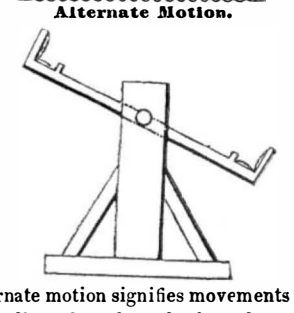
MECHANICAL MOVEMENTS.

The Pantagraph.



The above is a representation of an instrument useful for copying figures, for the purposes of copperplate engraving, &c. It is a combination of levers for transferring outlines on an enlarged or reduced scale. It is generally made of brass having the two outer sides extended and the inner so arranged by screws as to vary the motion in tracing out any figure, either on a large or small scale, by sliding the inner angle downwards so that a diamond shape is given to the instrument, leaving one point as a fulcrum and the outer or inner (as the scale is wanted) to trace the object. On the points there are generally small screws so that a pencil may be fixed to the same. This instrument was invented by Scheiner in 1603, but much improved by Professor Wallace of Edinburg and editor for some time of the celebrated Scott's Mechanics Magazine.

Alternate Motion.



Alternate motion signifies movements which continually take place backwards and forwards, but in most machines both reciprocating and rotary motion is combined. The above is a representation of alternate motion which also, to a limited extent, can be communicated circularly. The arms are represented as moving on an axis with the supposable force of continual elevation or depression, which at the angular points, if communicating with a wheel and spring would move it by its force one notch every stroke.—Something like the above motion was used by Newcomen in his first engine. The most simple explanation of alternate circular motion may be seen in the operations of a clock, by the strokes of a pendulum—a study which ought to interest especially every young mechanic.

Wood Vinegar.

This acid is made by the roasting of wood and distillation of the condensed smoke, is used very extensively in manufactures and medicine. In medicine it is used unpurified under the name of creosote, and possesses wonderful qualities for preserving water and meat in a fresh state for a long time. It is this which gives the peculiar flavor to smoked hams, salmon, &c., and which will communicate its taste to a whole barrel of meat, if the barrel be simply smoked before the meat is salted down. Three Russian ships circumnavigated the globe, and not one of the crew died, all were healthy, and their meat as good at the end of three years, as on the day when they sailed.—The secret was, that all their meat and water casks were charred It is employed in a purified state to dissolve iron for the purpose of making what is called black liquor, which is used very extensively in the printing of calicoes as a mordant, also in the dyeing of cotton yarn. It is used plentifully in making the acetate of lead and under the name of pyroligneous acid, it is applied to many uses and especially is an excellent wash in surgery.

Artificial Light.

In the solar rays the tints are so combined that in their transmission through the atmosphere they yield a perfectly colorless light.—These tints are red, yellow and blue, and to their exact balance are we indebted for pure light. In artificial light this equilibrium is destroyed, for the red and yellow tints predominate, and we are therefore more unable to judge of color by candle light. To remedy this it has been suggested to employ cobalt in the manufacture of lamp globes, &c., so that a slight tinge of blue might correct the artificial light.

Cheap Carpeting.

Sew together the cheapest cotton cloth and on this paste down sheets of paper (printed) and after being well dried, give it two coats of varnish on the top of the paper, when it is finished. This may be washed like oil cloth, and for bed rooms in summer it is as good as the most expensive article that is bought.

Photogenic Drawing.

If paper is prepared by steeping it in a solution of the bicromate of potass or nitrate of silver, and kept from light, it will give the representation of any thing, as a leaf, &c., if laid upon it and exposed to the sun's rays. Nitrate of silver, is the substance used for dyeing red whiskers black. We have also detected it lately in a new tooth powder. It is good for whitening ivory, but it is very poisonous.

Pass it Round.

Every "merciful man" who works a horse during the hot months, can promote its comfort by the use of the following simple shield against the teasing of flies :—Take two or three handsful of walnut leaves, upon which pour two or three quarts of cold water ; let it infuse one night, and pour the whole next morning, into a kettle, and boil for a quarter of an hour; when cold it is fit for use. Moisten a sponge with it, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor.

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